CLAIMS

1. A process for the preparation of a heterogeneous catalyst active in metathesis reactions of olefins containing rhenium as active component and alumina as inert carrier medium, characterized in that the inert carrier is treated with a silanizing agent having the general formula

$$R_nSiCl_m \qquad (I)$$

wherein R represents an amine or a C_1-C_{25} (iso)alkyl, C_5-C_{25} cyclo-alkyl, C_6-C_{18} aromatic or C_7-C_{25} alkyl aromatic radical, optionally containing at least one heteroatom selected from O, S and N; n is an integer so that $1 < n < 3$; m is an integer so that $1 < m < 3$.

2. The process according to claim 1, wherein the treatment of the carrier is effected using the silanizing agent as such or by means of dissolution of the silanizing agent in a solvent, the alumina being maintained in the presence of the solution of the silanizing agent, for a time ranging from 2 to 24 hours, at a temperature ranging from -10 to 100°C, and subjecting the alumina to optional thermal treatment ranging from 400 to 600°C.

3. The process according to claim 1 or 2, wherein the alumina has a surface area greater than 50 m^2/g and a total cumulative pore volume greater than 0.01 ml/g.

4. The process according to claim 3, wherein the alumina has a surface area ranging from 100 to 200 m^2/g and a total cumulative pore volume ranging from 0.3 to 0.8 ml/g.

5. The process according to claim 1, wherein the active rhenium component is laid on the carrier pretreated as specified in claims 1-4, by means of precipitation or impregnation starting from its precursors in the form of solutions of its salts or soluble complexes.

6. The process according to claim 5, wherein the rhenium precursors are selected from rhenium heptoxide, ammonium perrenate, tetra-alkyl ammonium perrenate and perrenic acid.

7. The process according to claim 1, wherein the catalyst contains a quantity of rhenium ranging from 1 to 20% by weight with respect to the carrier.

8. The process according to claim 7, wherein the catalyst contains a quantity of rhenium ranging from 3 to 10% by weight.

9. The process according to claim 1, wherein the catalyst containing rhenium on a carrier medium, is activated with a pre-calcination at a temperature ranging from 100 to 200°C in a stream of dry air and a subsequent calcination at a temperature ranging from 300 to 600°C first in a stream of dry air and then nitrogen.

10. A process for the conversion of olefins by means of a metathesis reaction characterized in that it is carried out in the presence of a catalyst according to claim 1.

11. The process according to claim 10, wherein the metathesis reaction can be homo-metathesis or co-metathesis.

12. The process according to claim 10, wherein the olefins are selected from mono-olefins having from 2 to 30 carbon atoms, cyclo-olefins having from 3 to 20 carbon atoms, polyolefins having from 6 to 30 carbon atoms, cyclo-polyolefins having from 5 to 30 carbon atoms.

13. The process according to claim 12, wherein the mono-olefins are selected from ethylene, propylene, butene, pentene, hexene.

14. The process according to claim 12, wherein the cyclo-olefins are selected from cyclo-pentene, cyclo-octene, norbornene.

15. The process according to claim 12, wherein the poly-olefins are selected from 1,4-hexadiene and 1,7-octadiene.

16. The process according to claim 12, wherein the cyclo-polyolefins are selected from 1,5-cyclo-octadiene, norbordiene dicyclopentadiene.

17. The process according to claim 12, wherein the mono-

olefins or polyolefins, linear or cyclic, can carry functional groups such as, for example, halogens or ester groups such as methyl oleate.

18. The process according to claim 10, wherein the metathesis reaction is carried out at a temperature ranging from 0 to 100°C and a pressure ranging from 0 to 100 bar.

19. The process according to claim 18, wherein the metathesis reaction is carried out at a temperature ranging from 25 to 60°C and a pressure ranging from 1 to 60 bar.

20. The process according to claim 10, wherein the metathesis reaction is carried out in gas phase or in liquid phase with or without a solvent selected from ethers, aliphatic and aromatic hydrocarbons.

21. The process according to claim 20, wherein the solvent is selected from ethyl ether, hexane, heptane, toluene.

22. The process according to claim 10, wherein the quantity of catalyst ranges from 1 to 50% by weight with respect to the reaction mixture.

23. The process according to claim 22, wherein the quantity of catalyst ranges from 1 to 10% by weight with respect to the reaction mixture.

24. The process according to claim 10, wherein the me-

tathesis reaction is carried out batchwise or in continuous.